

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A combination, comprising:
 - a) a plurality collection of capture agents, wherein each capture agent specifically binds to a polypeptide; and
 - b) a set containing a plurality of oligonucleotides, wherein:
 - i) [[that]] each member of the set of oligonucleotides comprises a sequence of nucleotides E_m that encodes a preselected polypeptide; wherein:
 - ii) the preselected polypeptides encoded by the oligonucleotides comprise the polypeptides to which the capture agents bind; [[and]]
 - iii) the oligonucleotides are single-stranded, double-stranded or partially double-stranded;
 - iv) each oligonucleotide comprises the formula:
 $5'-E_m-3'$;
 - v) each E_m encodes a sequence of amino acids to which a capture agent in the collection specifically binds;
 - vi) each sequence of amino acids encoded by E_m is unique in the set;
 - vii) m is at least 10;
 - viii) the collection of capture agents comprises at least M different sets of capture agents;
 - ix) M is at least 10 and is the number of different sequences of amino acids encoded by the oligonucleotides for which capture agents in the collection are specific;
 - x) each set of capture agents is specific for the same sequence of amino acids; and
 - xi) all sets of capture agents specifically bind to different sequences of amino acids encoded by the oligonucleotides.

2. (Previously presented) The combination of claim 1, wherein the capture agents are antibodies.

3. (Previously presented) The combination of claim 1, wherein the capture agents are arranged as an addressable array.

4. (Currently Amended) The combination of claim [[2]]1, wherein the capture agents are antibodies are arranged as an addressable array and portions thereof that specifically bind to antigens or sequences of amino acids.

5. (Original) The combination of claim 1, wherein the capture agents are linked directly or indirectly to a solid support.

6. (Original) The combination of claim 2, wherein the antibodies are linked directly or indirectly to a solid support.

7. (Original) The combination of claim 5, wherein the support is particulate.

8. (Currently Amended) The combination of claim 5, wherein the collection of capture agents comprise an array that is addressable.

9. (Currently Amended) The combination of claim 6, wherein the collection of capture agents comprise an array that is addressable.

10. (Original) The combination of claim 7, wherein the particles are optically encoded.

11. (Currently Amended) The combination of claim 1, wherein each of the oligonucleotides comprises at least two regions, wherein the regions are a divider region that contains a sequence of nucleotides that comprise a sequence unique to a target library, and an epitope a polypeptide-encoding region that encodes a sequence of amino acids to which a capture agent in the collection binds.

12. (Currently Amended) The combination of claim 11, wherein the divider region is 3' of the epitope polypeptide-encoding region.

13. (Currently Amended) The combination of claim 11, wherein the divider and epitope polypeptide-encoding regions comprise at least about 10 nucleotides.

14. (Currently Amended) The combination of claim 13, wherein the divider and epitope polypeptide-encoding regions comprise at least about 15 nucleotides.

15. (Original) The combination of claim 13, wherein each of the oligonucleotides further comprises a common region, wherein the common region is shared by each of the oligonucleotides in the set, and is of a sufficient length to serve as

a unique priming site for amplifying nucleic acid molecules that comprise the sequence of nucleotides that comprises the common region.

16. (Currently Amended) The combination of claim 15, wherein the common region is 3' of the epitope polypeptide-encoding region and/or of the divider region.

17. (Original) The combination of claim 1, wherein each oligonucleotide comprises a plurality of preselected polypeptides to which the capture agents bind.

18. (Currently Amended) The combination of claim [[X]]17, wherein the plurality is three.

19. (Original) The combination of claim 1, wherein the capture agents are immobilized at discrete loci on a solid support, wherein the capture agents at each loci specifically bind to one of the preselected polypeptides.

20. (Currently Amended) The combination of claim 19, wherein the capture agents are antibodies; and the preselected polypeptides comprise [[an]] a sequence of amino acids epitope or plurality thereof to which the antibodies bind.

21. (Original) The combination of claim 1 that comprises from 3 up to 10^6 capture agents that specifically bind to different polypeptides.

22. (Original) The combination of claim 2 that comprises from 3 up to 10^6 capture agents that specifically bind to different polypeptides.

23. (Currently Amended) The combination of claim 15, wherein the length of each of the divider region, epitope-and common region, and polypeptide-encoding region to which a capture binds regions is at least about 14 nucleotides.

24. Canceled

25. (Currently Amended) The combination of claim [[24]] 1, wherein each oligonucleotide further comprises a common region C, and comprises formula:

5' C-E_m 3',

wherein the common region is shared by each of the oligonucleotides in the set, and is of a sufficient length to serve as a unique priming site for amplifying nucleic acid molecules that comprise the sequence of nucleotides that comprises the common region.

26. (Currently Amended) The combination of claim 1, wherein the oligonucleotides comprise formula:

5'-D_n-E_m- 3'

wherein:

each D is a unique sequence among the set of oligonucleotides and contains at least about 10 nucleotides;

each E encodes a sequence of amino acids to which a capture agent binds, wherein each such sequence of amino acids is unique in the set;

each of n and m is, independently, an integer of [[2]] 10 or higher.

27. (Currently Amended) The combination of claim [[16]] 26, wherein the capture agents are antibodies; and the unique sequence of amino acids comprises an epitope a sequence of amino acids to which a capture agent binds.

28. (Currently Amended) The combination of claim 27, wherein m, which is 10 or greater, is the number of antibodies with different epitope specificity in the combination and n is from about 10 [[2]] up to and including 10⁶.

29. (Currently Amended) The combination of claim 26, wherein m, which is 10 or greater, is the number of capture agents with different epitope specificity in the combination and n is from about 10 [[2]] up to and including 10⁶.

30. (Currently Amended) The combination of claim 28, wherein n is from about 10 [[2]] to about 10⁴, inclusive.

31. (Currently Amended) The combination of claim 29, wherein n is from about 10 [[2]] to about 10⁴, inclusive.

32. (Currently Amended) The combination of claim [[29]] 28, wherein n is from about 10 [[2]] to about 10², inclusive.

33. (Currently Amended) The combination of claim 2 that comprises up to about 10³ antibodies.

34. (Currently Amended) The combination of claim 11, wherein the length of each of the divider region and epitope polypeptide-encoding region to which a capture agent binds regions is independently at least about 14 nucleotides.

35. (Currently Amended) The combination of claim 11, wherein the length of each of the divider region and epitope polypeptide-encoding region to which a capture agent binds regions is independently at least about 16 nucleotides.

36. (Original) The combination of claim 1, wherein the oligonucleotides are single-stranded primers.

37. (Original) The combination of claim 1, wherein the oligonucleotides are double-stranded.

Claims 38-48 previously canceled.

49. (Currently Amended) A system for sorting collections of molecules, comprising:

- a) a combination of claim 1; and
- b) a computer system with software for analyzing results of ~~sorts~~ sorting of molecules tagged with the polypeptides encoded by the oligonucleotides in the combination and bound to the collections of capture agents in the combination via interactions of the tags with the capture agents.

50. (Currently Amended) A system for sorting collections of molecules, comprising:

- a) a combination of claim 2; and
- b) a computer system with software for analyzing results of ~~sorts~~ sorting of molecules tagged with the polypeptides encoded by the oligonucleotides in the combination and bound to the collections of capture agents in the combination via interactions of the tags with the capture agents.

51. (Original) The system of claim 49, further comprising a reader for detecting binding to capture agents in the collection.

52. (Original) The system of claim 51, wherein the reader comprises an imaging system.

53. (Currently Amended) The system of claim [[50]] 51, wherein the [[a]] computer system stores data and/or assesses data collected by the reader.

54. (Original) The system of claim 52, wherein the imaging system is a charge coupled device (CCD) or an array of photodiodes.

Claims 55 –92 previously canceled

93. (Currently Amended) The combination of claim 1, that comprises from about 30 up to about 10^4 capture agents.

94. (Currently Amended) The combination of claim 29, wherein n is from about 10 [[2]] up to and including 10^5 .

95. (Currently Amended) The combination of claim 29, wherein n is from about 10 [[2]] to about 10³, inclusive.

Claims 96-98 previously canceled

99. (Previously presented) The combination of claim 26, wherein each oligonucleotide further comprises a common region C, and comprises formula:

5' C-D_n-E_m 3',

wherein the common region is shared by each of the oligonucleotides in the set, and is of sufficient length to serve as a unique priming site for amplifying nucleic acid molecules that comprise the sequence of nucleotides that comprise the common region.